

# Social representations on aging: Structural differences concerning age group and cultural context

## Representaciones sociales del envejecimiento: Diferencias estructurales relacionadas con la edad y el contexto cultural

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### Abstract

Mainly due to the salience of the world population aging phenomenon, aging and old age are consistently gaining relevance in social life and pointing out to the importance of characterizing the social representations about the topic. After identifying the need of systematic structural research at the level of structural status and basic cognitive scheme activation related to the social representations on aging, two controlled survey studies were conducted to assess the roles of age group and cultural context to differentiate representational structures. Gender was also taken into account. Study 1 had a sample of 80 Italian participants balanced by gender and age group (young and mature). Study 2 had a similar design, comparing the results from the young Italian sample to a group of 40 young Brazilians. Instruments were questionnaires with standard basic cognitive schemes tasks and centrality questionnaires. Log-linear analysis and one-way chi-square tests were employed for data analysis. Results indicated that both, in terms of structural status and scheme activation, the age group and cultural context variables are associated to representational differences, while the role of gender was restricted to peripheral modulations. The study sets foundations for further basic and applied research by providing a baseline structural characterization.

*Keywords:* social representations; aging; age groups; culture; structural approach.

### Resumen

Principalmente debido a la relevancia del fenómeno del envejecimiento de la población mundial, el envejecimiento y la vejez están constantemente ganando relevancia en la vida social y señalando la importancia de caracterizar las representaciones sociales sobre el tema. Tras identificar la necesidad de la investigación estructural sistemática a nivel del estatus estructural y la activación de esquemas cognitivos básicos relacionados con las representaciones sociales sobre el envejecimiento, se llevaron a cabo dos encuestas científicas controladas para evaluar las funciones del grupo de edad y del contexto cultural y para diferenciar las estructuras de representación. También se tuvo en cuenta el género. En el estudio 1 la muestra fue de 80 participantes italianos equilibrada por sexo y grupo etáreo. El estudio 2 tuvo un diseño similar, comparando los resultados de la muestra de jóvenes italianos con un grupo de 40 jóvenes brasileños. Los instrumentos fueron cuestionarios con tareas de esquemas cognitivos básicos estándar y cuestionarios de centralidad. El análisis log-lineal y pruebas de chi cuadrado de una vía fueron empleados para el análisis de datos. Los resultados indicaron que tanto en términos del estatus estructural como de la activación de esquemas, el grupo de edad y la variable contexto cultural están asociados a las diferencias en las representaciones, mientras que el papel del género se limita a modulaciones periféricas. El estudio establece las bases para futuras investigaciones básicas y aplicadas, proporcionando una caracterización estructural de base.

*Palabras clave:* representaciones sociales; envejecimiento; grupos de edad; cultura; enfoque estructural.

In the past decades, the theme of aging has stimulated growing scientific interest also because of a macro social change that affects societies worldwide, indicating the increasing importance of related topics: the world population aging phenomenon. Global population aging is the process in which both population mortality and fertility decreased, so that elderly people gradually become a higher proportion within overall population, and life expectancy, at birth increases worldwide (United Nations, 2001).

Europe is the continent in the world with the highest proportion of people over 60 years old: as of 2007, there were 153 million people over 60 years of age (21.1%), which is estimated to rise to 34% of the population by 2050. Italy holds one of the top positions among the countries with the oldest populations. Currently 26% (over 15 million Italians) of its population is 60 years old or older, which makes Italy the 2<sup>nd</sup> country with the highest proportion of elderly people in the world (Istituto Nazionale di Statistica, 2009; United Nations, 2006, 2007).

Latin America has a contrasting position. Currently it is a young region, with 9.1% (52 million) of its population at age 60 or more, but the advanced pace of population aging will be much faster than what has taken place so far for the most developed regions of the world: in 2050 the Latin American population over 60 will be 25% (188 million) (United Nations, 2006, 2007). Latin American countries are facing deep demographic changes, and are bound to switch from “young” regions to “mature” in record time. In 2010, it is estimated that 9% of Brazil’s population is over 60 years of age (17 million Brazilians). By 2050, that proportion would increase to 25% (United Nations, 2006).

The longer life made possible by advances in medicine and the phenomenon of world population aging have given higher social relevance to the topic of aging, making of it a more pervasive social communication theme. It is important to characterize the knowledge that people have about this topic, based on the understanding that beliefs about aging and old age, just as knowledge about other social objects, provide the bases to justify, explain and guide actions about it (Abric, 1994a). Social representations theory is a sociopsychological perspective that provides a framework to investigate shared knowledge about socially relevant issues (Moscovici, 1961; 1976). In the present effort, we tackle the phenomenon of common knowledge about

aging, through social positions from a social representations approach. The characterization of aging as a social object, and therefore as a likely object of social representation, is presented in the next section.

### *Aging as a social representation object*

Social representations theory is the broad name given to a research paradigm directed towards the study of everyday knowledge that is shared by social groups (Moscovici, 1961; 1976). According to a structural perspective, a social representation is a symbolic construct composed by a set of elements –also called *cognems*– that refers to a social object, that is, a topic, theme, or event that is pertinent to a social group (Flament & Rouquette, 2003). Social representation structure is formed by a double system: a central core comprising a few consensual elements that define the object and provide the general meaning of the representation, and a peripheral system containing less shared elements that usually have a more practical role and adapt the representation to particular contexts (Abric, 1994a, 1994b). Representation elements can get into three types of relationships with social objects: descriptive, practical and evaluative (Guimelli & Rouquette, 1992)<sup>1</sup>.

If it is considered that the beliefs about aging depend on social construction (Gergen & Gergen, 2000; Jodelet, 2009) and therefore are potentially different across social contexts, then it makes sense to think of aging as a social object. As already pointed out elsewhere (Gastaldi & Contarello, 2006; Wachelke, 2008), the analysis of some criteria proposed by Moliner (1993) to identify social representation objects, points out for the validity of the classification of the aging theme as a social representation object. Aging is a “grand” theme that has been an important topic for humanity throughout history. It is a topic that is expressed in different particular contexts: old age, the quest to remain young, how to take care of one’s mind and body, its relationships with death and time, and so on. A second criterion requires the identification of a relevant intergroup context. As mentioned previously and evidenced by scientific literature, differentiation at the level of intergroup knowledge on aging involves age groups. Finally, a third criterion involves the identification of a

<sup>1</sup> Since both social objects and social representation elements are labeled by verbal signs, in the present text social object labels will be written between square brackets - [ ] - while angle brackets - < > - will be employed to refer to social representation elements.

stake value for the object, in relationships with pertinent groups. If we are to consider two contrasting age groups –young and elderly people–, the understanding that aging has different stake values for both of them can be advanced. For young people, aging is most likely an abstract threat that eventually comes into play in their everyday lives when they face situations involving elderly people or cues that refer to aging processes. Thus, for the young, aging might come into play in the form of eventual problems, and has a conjunctural stake configuration. In contrast, the identity of elderly people is somewhat defined by aging, as one recognizes him or herself as being old if a certain length of time has passed, if related aging processes are already at an advanced level, or if others perceive him or her as belonging to the elderly people category. This corresponds then to a structural stake.

It is also likely that cultural contexts provide relevant social segmentation to differentiate group knowledge on aging. Societies differ in the pertinence of the aging topic at a given moment. The proportion of elderly people in the population, the rate of population aging and differences in values and representations that might affect the beliefs and evaluations about elderly people, and old age are some of the factors that justify the understanding that people from different cultural contexts might constitute groups with different social representations. Cultural contexts are understood here as “block” variables comprising the experiences that are similar to people from a same country and socioeconomic and educational background at a certain time. Lehr (2002) pointed out the importance of conducting transcultural research about aging, and that can be extended to the study of social representations related to it.

### *Social representations on aging*

The international literature on social representations related to [elderly people], [old age] and [aging] in general points out to a mixed representation formed by positive and negative elements. In terms of content, very often the social representations on aging or the elderly person are practically interchangeable, and they are constituted by two dimensions that correspond to biological and psychological gains or losses, derived from the aging process, as observed in studies from Argentina (Monchietti, Cabaleiro, Sánchez & Lombardo, 2000), Brazil (Veloz, Nascimento-Schulze & Camargo, 1999; Wachelke, Camargo, Hazan, Soares, Oliveira

& Reynaud, 2008; Wachelke, 2009, Magnabosco-Martins, Camargo & Biasus, 2009); Colombia (Parales & Dulcey-Ruiz, 2002), France (Moliner & Vidal, 2003; Gaymard, 2006) and Italy (Gastaldi & Contarello, 2006; Nagel, 2008). It is important to point out that in spite of the existence of different national cultures and population age structures in those countries, results related to representation content were remarkably similar in samples of healthy participants from urban settings often related to university contexts. Differentiations in representations were identified in terms of age, gender and occupational groups.

Considering differences between age groups, the elderly tend to mention more concrete and positive elements on their representations, in comparison to the young, at least in some Italian (Gastaldi & Contarello, 2006) and Brazilian contexts (Magnabosco-Martins et al., 2009). Young people usually share a clearly two-dimensional representation in which <wisdom> is one of the most salient elements, but is followed by a majority of negative elements like <death>, <decline> and <illness> (Mithidieri & Tura, 2003; Moliner & Vidal, 2003; Gastaldi & Contarello, 2006; Gaymard, 2006; Wachelke, 2009). Middle-aged adults tend to share the representation contents with younger ones to a large extent (Magnabosco-Martins et al., 2009), but as people get older and closer to old age, their representations seem to shift from abstract to more concrete contents (Wachelke et al., 2008).

Regarding differences on representations that are modulated by gender, some results point out that women stress more the loss of physical beauty and family ties associated to getting older (Veloz et al., 1999), while others refer to young women viewing aging more positively than men at their age group (Gastaldi & Contarello, 2006), or do not provide clear difference patterns (Nagel, 2008). There are also results that indicate that even if the representations on grandparents' roles are usually characterized by family and affective support, there are cultural differences concerning the perceptions of elderly men and women in the role of friends (Duque, 2002). Overall, social representations on [aging] and gender are, apparently, to be considered in specific contexts, and no clear trend can be outlined from past research.

There have been few structural studies focusing the social representations on [aging] and the elderly person. They were conducted in Colombia, France and Brazil.

In Colombia, the research of Rubiano, cited by Duque (2002), investigated the structure of social representations in a specific neighborhood of Bogotá, and identified the elements <loss of capacities> and <decrease in health>, which formed the central core. In Brazil, Mithidieri and Tura (2003) identified <wisdom> as a central element of the representation, but also observed that the peripheral system was composed by negative elements. Wachelke (2009) obtained results that pointed out to the centrality mainly of <wisdom>, but also <health>, <family> and <physical signs>. In France, Moliner and Vidal (2003) characterized the central core of the social representation on the [elderly person]. It contained the following elements: <experience>, <illness>, <bad driving skills>, <free time> and <traditions>. Gaymard (2006) verified that nurses and nursing students had a representation on the same object, with a core involving the ideas of <dependency>, <wisdom>, <experience> and <old age>.

Throughout those structural studies, the most recurrent result involves the identification of <wisdom> or a semantically close element (such as <experience>) as a component of the central core of the related representations. However, most structural studies were somewhat superficial in the description of structure, limited to the mere identification of likely centrality related to specific elements. The identification of a vast amount of decline-related elements in representational peripheral systems, suggest that the understanding of the cognitive bases of the representation is currently unsatisfactory. Possibilities to explain it might include either the existence of other elements on the central core, or the action of a social desirability effect, that might overrate the role of <wisdom> in the representation (Wachelke & Lins, 2008). Moreover, a remarkable absence is noticed. No study has evaluated the types of relationships that are associated with [aging] in terms of basic cognitive schemes. While representations on certain objects can be satisfyingly “grasped” through a confirmation of the central core, aging seems to call for more steps of investigation, with a simultaneous study of the structural and affective charge dimensions and basic cognitive schemes.

The present study aims at characterizing the structure of the social representation on [aging] and assessing the effects of two variables in it. The first variable involves two different age groups: young and elderly people, at the level of structural status of representation elements and

basic cognitive schemes activation. To fulfill that objective, research was conducted with an Italian sample. A second assessed variable was national cultural context, and to evaluate it, research was also conducted in two different contexts: Italy and Brazil.

Additionally, we chose to control and assess the role of gender. Regarding that variable, results of past research point out to peripheral differences, but one has no reason to expect to find a significant difference in terms of representation structure.

Cultural or intergroup contexts more or less affected by generational conflicts or large differences in demographic pyramids could probably be associated with different views on aging. If people from different cultural contexts can be considered as people from different groups, it is expected that structural differences are identified. Past results from different contexts have not created expectations of the directions of those differences, but they did not compare representation structures systematically across cultures.

Two studies were conducted. Both were controlled surveys that aimed at characterizing the representation structure of young and mature Italian participants on the representation on [aging] (Study 1) and the structures of the representations from young participants from the two investigated national cultural contexts (Study 2). They will be reported separately.

## Study 1

### Method

#### Design

The study was a controlled survey with two explaining variables: age group (young and elderly person) and gender. There were a series of dependent variables sets: social implication by [aging], structural status of the elements of the social representation on [aging], affective loading associated to social representation elements and basic cognitive schemes valences.

#### Participants

The survey had 80 participants: 40 of them were young adults with ages ranging from 19 to 29 years old ( $M = 22.20$



years,  $SD = 2.10$  years), half of each gender; and the other 40 were mature adults with ages between 60 to 75 years ( $M = 64$  years,  $SD = 4.03$  years), reasonably balanced by gender (21 were women). We referred to those participants as mature, rather than elderly because we reckon that classifications of people in third age vary across contexts. The label “mature” is useful to emphasize the aim of the study: to investigate contrasting relationships with the representations on aging between young people and older ones. Young adults were undergraduates enrolled in the University of Padua. Mature participants were a more diverse group formed by grandparents, relatives and acquaintances of students who lived in the Veneto region. While all young people came from a variety of undergraduate courses - 11 courses from law, social, biological and exact fields -, older participants differed in terms of their education: 6 of them had attended elementary school, 8 had reached up to basic education, 15 had completed high school and 11 had a university degree.

### *Instrument*

A questionnaire in Italian was employed. On the opening page, it was written that the participants would provide their opinions about themes of social life. After that, they had to complete a basic cognitive schemes task (cf. Guimelli & Rouquette, 1992). Participants were asked to write down the first three words that came to mind when thinking about ‘aging’, justifying each one. Then they indicated, for each response, if a series of 28 logical operators connecting aging with the response were activated or not. These connectors are grouped according to the type of relationship that they express, forming three meta-schemes: Description (9 connectors), Praxis (12) and Attribution/Evaluation (7) (Rateau, 1995).

Further, participants completed a centrality questionnaire task based on the questioning - ‘mise-en-cause’ (MEC) - principle (Moliner, 1994), about [aging]. Instructions were introduced by the following sentence: “According to you, can you say that one person is aging if...” and then there were a series of items contradicting, one by one, the cognems that had been identified and selected through a preliminary study<sup>2</sup>. All items were framed in the negative

direction. As an example, for the <death> element, it was: “...he/she is not getting close to death”. The items on [aging] were short sentences related to seven elements: <death>, <wisdom> (he/she is not gaining wisdom), <new activities> (he/she is not taking part in new activities), <social exclusion> (he/she is not cast aside by other people), <general decline> (he/she is not losing physical and mental capacities), <family> (he/she is not together with his/her family) and <health problems> (he/she is not facing health problems or illnesses). For each item, participants had to select one of four options: “certainly yes” (absolute acceptance), “probably yes” (conditional acceptance), “probably not” (conditional rejection) and “certainly not” (absolute rejection).

### *Procedure*

Participants were contacted individually. Undergraduates who were at the university library or study rooms were briefly informed about the questionnaire and invited to participate. In case of agreement, they completed the questionnaire on the spot, individually. The recruitment of mature participants occurred through the help of other undergraduates who declared that they had grandparents, relatives or acquaintances at ages between 60 and 75 –it was a convenience sample. Those students were given clarifying instructions on the instrument, in order to be able to solve common doubts related to it. Further, they took the questionnaires to the mature people that they knew, who completed the questionnaires at home. Afterwards questionnaires were returned to the researcher. The distribution of questionnaires was controlled by gender and age group in order to obtain a number of questionnaires as balanced as possible according to the planned research design.

### *Hypotheses and expectations*

The most important explaining variable role was expected to be performed by age group, due to the different stakes

<sup>2</sup> It was an unpublished qualitative study that aimed at characterizing social representation content to help construct the questionnaires of the main studies that are reported in this paper. The preliminary investigation consisted of 24 interviews, 12 in Italy and 12 in Brazil, conducted by

a native interviewer with young, middle-aged and elderly adults. Samples were balanced by age group and gender. The interviews were preceded by an associative task, called associative card (Abric, 1994c) that consists in providing evocation responses to the word “aging”, and then evocations to each response, consecutively, so as to clarify their meanings. The interviews themselves were of a semi-structured nature and were conversations about beliefs and experiences regarding aging. The analysis of data was qualitative, and resulted in the identification of the mentioned seven elements and their content.

that young and elderly people face when it comes to old age and aging, as reported in the literature review. As for gender, Flament and Rouquette (2003)'s theoretical position interprets gender effects in social representation structures as field effects, as gender belonging is a highly relevant social identity marker that is cross-sectional to many topics, but is usually restricted to peripheral differences. If data supports this position, results related to gender should refer only to minor or peripheral differences, in terms of representation structure, and there are no reasons to expect significant effects for SCB valences. This is valid for both the age group and cultural contexts investigations.

Centrality tests had exploratory purposes, so no strong hypothesis was formulated for them. According to the literature, elements <death> and <wisdom> would be expected to be central. Still, the differences in terms of the stakes faced by both age groups, leads us to formulate a very broad hypothesis stating that their knowledge on [aging] is different.

Hypothesis C-1: the central cores of the social representations of young and mature participants on [aging] will differ, i.e., there will not be an exact coincidence in terms of the central elements of both representations.

A few hypotheses guided the analysis of results on basic cognitive schemes activation.

Hypothesis SCB-1: mature participants will activate more schemes overall than younger adults, as aging is a theme that is more present in their everyday lives.

Hypothesis SCB-2: mature participants will have higher Praxis partial valences than young ones. Literature, about the effect of practices on basic cognitive schemes activation has shown that people with more practical experience regarding an object, activate more practical relations, than people without that kind of experience (Guimelli, 1994). Since elders have more practical experience linked to aging, practical connectors should be more activated for that group than for young people, as the latter, supposedly, have less access to functional aspects of the aging process.

A hypothesis on the activation of Evaluation connectors can be formulated, under the condition that Hypothesis 1 –global activation trend– is true. Literature shows that people without practical experience on a topic preferably

activate normative elements, rather than functional ones (Abric & Tafani, 1995). A result that is compatible with this tendency would be young people activating more attribution connectors than mature people, which leads to:

Hypothesis SCB-3: young participants will have higher Attribution partial valences, than mature ones.

On the other hand, if mature participants have a globally higher activation rate for all schemes, then that tendency might not be true. If the first hypothesis of global activation is confirmed, then there are no expectations that young people would activate more attribution connectors than older participants, but rather that:

Hypothesis SCB-4. Attribution connectors will consist of a larger proportion within the activation proportion of young participants, in comparison to Description and Praxis connectors, than in the case of mature participants.

## Results

### *Structural status of representation elements*

Saturated model log linear analyses were calculated to test the existence of any effect –main or interaction– on rejection proportions for each element, based on a three way table (age group x gender x acceptance or rejection responses). A Microsoft Excel-based program for the analysis of three-way tables (Sánchez-Peregrino, 2008) was used for those analyses. There were no significant global effects for most cognems: <death> [ $Y^2(7, N = 80) = 10.352, p = .170$ ], <wisdom> [ $Y^2(7, N = 80) = 4.662, p = .701$ ], <new activities> [ $Y^2(7, N = 80) = 5.617, p = .585$ ], <social exclusion> [ $Y^2(7, N = 80) = 8.049, p = .328$ ], and <health problems> [ $Y^2(7, N = 80) = 10.422, p = .166$ ]. There were significant global effects for <general decline>. [ $Y^2(7, N = 80) = 21.689, p = .003$ ] and <family> [ $Y^2(7, N = 80) = 18.061, p = .012$ ], and in both cases the only significant effect referred to a higher proportion of rejection responses than acceptance ones [<general decline>:  $Y^2(1, N = 80) = 18.799, p = .001$ ,  $\chi^2_{rej} = 4.05, p < .001$ ; <family>:  $Y^2(1, N = 80) = 16.797, p = .001$ ,  $\chi^2_{rej} = 3.88, p < .001$ ]. These results indicate that there was no interference of gender or of an interaction involving gender on rejection rates. Therefore, analyses proceeded with the characterization of rejection rates for each age group, as this was the main variable of interest.

Following a possibility indicated by Moliner (1996), goodness of fit chi-square tests were conducted to assess the rejection rates of questioning technique items. Items with rejection rates significantly higher than a 50% proportion were classified as being related to central elements. With  $N = 40$ , a frequency of 27 (67.5%) is the minimum value that yields a significant departure

from equiprobability [ $\chi^2(1) = 4.220, p = .040, w = .35$ ]. It was then defined, as the cut-off point to indicate the central status of a representational element. Separate results were obtained for each age group, so as to provide indications of young and mature participants' representation structures on [aging]. The results are presented in Table 1.

**Table 1**  
*Rejection rates, statistical test results and structural status of elements linked to the social representation on aging, per age group.*

Element	Young			Mature		
	Ref. / %	$\chi^2(1)$	Status	Ref. rate	$\chi^2(1)$	Status
General decline	28 / 70	6.40*	Central	31 / 77.5	12.10***	Central
Family	31 / 77.5	12.10***	Central	27 / 67.5	4.90*	Central
Social exclusion	25 / 62.5	2.50	Per.	27 / 67.5	4.90*	Central
Death	15 / 37.5	---	Per.	27 / 67.5	4.90*	Central
Wisdom	24 / 60	1.60	Per.	25 / 62.5	2.50	Per.
Health problems	23 / 57.5	.90	Per.	26 / 65	3.60	Per.
New activities	21 / 52.5	.10	Per.	13 / 32.5	---	Per.

\*  $p < .05$  \*\*  $p < .01$  \*\*\*  $p < .001$

For both groups, <general decline> and <family> are central elements. <Social exclusion>, in the current study, only had a central status for the mature participants, yet the results suggest that the peripheral status of it for the young might be linked to the relatively small sample size of the analysis, and is likely to be subject to fluctuations in other data collections, as the difference in proportion when compared to the one of older participants is minimal. <Death>, on the other hand, presents a clear peripheral profile for the young, while for the older participants' sample, it was also a central element; that is the most remarkable difference in the representation structures of the two groups. The remaining elements have a peripheral status

in both groups. Results indicate that the central cores of the social representations of young and elderly participants on [aging] are different, thus confirming hypothesis C1.

### Basic cognitive schemes

Saturated log linear models were calculated for basic cognitive scheme activation in order to verify the effect of explaining variables. Scheme activation was the dichotomous dependent variable for all analyses, taking values "No" ("No" and "?" responses) and "Yes". Table 2 presents the distribution of Activation responses per Age group, Gender and Meta-scheme.

**Table 2**  
*Activation response distributions by Age group, Gender and Meta-scheme.*

	Age group											
	Young						Mature					
	Description		Praxis		Attribution		Description		Praxis		Attribution	
Gender	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Male	345	195	472	248	216	204	214	299	374	310	205	194
Female	324	216	451	269	231	189	269	298	455	301	206	235

Four log-linear analyses were run from the three way table; the first table dealt with full SCB questionnaire activation, including all connectors; the three following analyses took the separate basic cognitive meta-schemes (description, praxis and attribution) into account. The analysis on overall SCB proportion activations ( $N = 6720$ ) had significant Gender [ $Y^2(1) = 4.020, p = .040$ ], Activation [ $Y^2(1) = 96.424, p < .001$ ], Gender x Age group [ $Y^2(1) = 4.204, p = .040$ ] and Activation x Age group effects [ $Y^2(7) = 60.397, p < .001$ ]. The main effect related to Activation simply indicates that the activation responses were less than non-activations (“No” and “?”) responses. The main effect on Gender and the two-way interaction involving Gender and Age group are not particularly interesting, as they derive directly from research design, indicating that there was a slight difference in gender of older participants. Such effects will not be reported for the remaining analyses. The effect that is relevant is one Activation x Age group interaction. It demonstrates that mature participants activated proportionally more SCB connectors – 48.5% – than did the young ones: 39.3% ( $\chi^2 = 7.81$ ). This effect confirms hypothesis SCB-1 on global SCB cognem activation.

There are two important interaction effects for the analysis involving Description connectors ( $N = 2160$ ). The Activation x Age group interaction [ $Y^2(1) = 64.682, p < .001$ ] indicates an association similar to the general trend, that is, older participants activating more Description connectors – 55.3% – than the young group – 30.1% ( $\chi^2 = 8.04, p < .001$ ). The three-way interaction [ $Y^2(1) = 5.123, p = .024$ ] suggests that mature participants might activate proportionally more connectors – 58.3% – than mature women – 52.6%, but it was not a significant association. For the young, association was even weaker.

Concerning the Praxis analysis ( $N = 2880$ ), there were also an Activation x Age group interaction [ $Y^2(1) = 12.888, p < .001$ ] and a second-order [ $Y^2(1) = 5.284, p = .022$ ] interaction effect. The two-way interaction indicates that again older participants activated proportionally more practical connectors than younger ones – 42.4% vs. 35.9%, respectively ( $\chi^2 = 3.64, p < .001$ ), confirming hypothesis SCB-2. The interpretation of the three-way interaction is that for the young group, men and women participants did not differ in activation proportions, while for the mature ones, the activation proportion for men – 45.3% – was

slightly higher than the one relative to women – 39.8% ( $\chi^2 = 2.30, p < .025$ ).

In contrast, there was no significant global effect for the Attribution meta-scheme items ( $N = 1680$ ). The global activation proportion was 48.9% [ $Y^2(7) = 8.863, p = .263$ ]. Hypothesis SCB-3 was not adequate to explain the obtained results. The analysis then proceeded to verify the internal importance of meta-scheme activations for each age group.

The activation profiles in terms of meta-schemes for young and mature participants were then assessed through the calculation of a saturated log-linear analysis on a three way table with variables Age, Meta-scheme and Activation ( $N = 6720$ ). The second-order interaction was significant [ $Y^2(2) = 20.261, p < .001$ ], indicating that young participants’ Attribution activation rate had a higher importance in the overall profile (29.8%) in comparison to the importance it had in the profile of mature participants (26.2%) ( $\chi^2 = 2.77, p < .01$ ). In contrast, mature participants had a more important participation of descriptive connectors (34.5%) when compared to the profile of the young (31.1%) ( $\chi^2 = 4.43, p < .001$ ). The pattern that was predicted in hypothesis SCB-4 was supported: the higher activation trend of older participants was equaled by a more evaluative nature of the logical connectors activated by young people, a group that has a lower level of direct contact and identification with aging-related events.

## Study 2

### Method

#### Design

The study was a controlled survey with two explaining variables: national cultural context (Italy - Padua and Brazil - Florianopolis) and gender. The dependent variables were the same from Study 1: structural status of the elements of the social representation on [aging], and basic cognitive schemes valences.

Cultural context is here understood as a restricted context in which participants have in common a block of characteristics, that is due to being and living in Italy or Brazil. Those national cultures are considered as relatively



separated realities and that is why those broad blocks are operationalized as explaining variables. This is thus close to a cross-cultural perspective, in which it is assumed that participants from different cultural backgrounds offer comparable settings for the observation of variation in sociocognitive configurations.

## Participants

The study had 80 participants, divided in two groups. The Italian sample was the young participant sample from Study 1, which has been included in the analyses of Study 2. The Brazilian sample had 40 participants, all of them young adults with ages ranging from 18 to 29 years old ( $M = 21.76$  years,  $SD = 2.26$  years), half of each gender. All participants from the Brazilian sample were undergraduates enrolled in 19 courses from various fields of the Federal University of Santa Catarina, comparable with the Italian ones.

## Instrument

The same instrument employed in Study 1 was used for Study 2, the only difference being its language: Portuguese instead of Italian.

## Procedure

The same recruitment steps employed for the young sample of Study 1 were adopted for Study 2. In addition, the same data analysis procedures from Study 1 were employed.

## Hypothesis and expectations

If the major differences in terms of cultural contexts (in terms of world population aging, contact level of young and elderly people, the role of the elderly people in societies) are reflected in different social representation structures, then the social representations of Italian and Brazilian participants are expected to have different structures.

Hypothesis C-2: the central cores of the social representations of Italian and Brazilian young participants on [aging] will be different from each other.

In terms of SCB activation, two hypotheses can be advanced, on the understanding that Italian participants would have more experiences with elderly people, old

age and the aging phenomenon in their countries, due to the configuration of Italy's population pyramid, that makes the topic more salient. They are likely to have more practical experiences regarding this phenomenon when compared to Brazilian participants. Then, it is likely that their social representations activate more relationships than the Brazilians'. Additionally, Italian participants should have a more practical representation than Brazilians (although, as shown on the results of Study 1, their representations are more normative than practical). The activation of profile of Brazilians should also privilege attribution activations.

In a way that is also similar to Study 1, three hypotheses can be formulated:

Hypothesis SCB-5: Italian participants will activate more schemes overall than the Brazilian, as aging is a theme that is more present in their everyday lives.

Hypothesis SCB-6: Italians will have higher Praxis partial valences than Brazilians.

On the condition that hypothesis SCB-5 is true, we can expect that Brazilians, due to less experience with [aging], will have a representation with a more important participation of Attribution connectors, than Italian participants, in a way that was similar to the comparison between young and mature participants from Study 1:

Hypothesis SCB-7. Attribution connectors will consist of a larger proportion within the activation proportion of Brazilian participants, in comparison to Description and Praxis connectors, than for Italian participants.

## Results

### *Structural status of representation elements*

As observed in Study 1, there were no significant global effects for most cognems: <death> [ $Y^2(7, N = 80) = 11.704, p = .127$ ], <wisdom> [ $Y^2(7, N = 80) = 8.066, p = .327$ ], <new activities> [ $Y^2(7, N = 80) = 6.783, p = .452$ ], <social exclusion> [ $Y^2(7, N = 80) = 12.171, p = .095$ ], and <health problems> [ $Y^2(7, N = 80) = 10.074, p = .184$ ]. Also as in the first study, there were significant global effects for <general decline>. [ $Y^2(7, N = 80) = 20.003, p = .006$ ] and <family> [ $Y^2(7, N = 80) = 15.576, p = .029$ ], which accounted simply to a higher

proportion of rejection responses rather than acceptance ones [ $\langle \text{general decline} \rangle$ :  $Y^2(1, N = 80) = 18.799, p = .001, \chi^2 = 4.07$ ;  $\langle \text{family} \rangle$ :  $Y^2(1, N = 80) = 13.165, p = .001, \chi^2 = 3.50$ ]. The analyses then proceeded with the assessment of rejection rates per cultural context group, to characterize the representation structure in terms of structural status.

The cut-off frequency of 67.5% from Study 1 was again taken into account. The results of the Italian sample (the same from the young sample of Study 1, Table 1) are presented alongside the results relative to the Brazilians, in Table 3.

**Table 3**  
*Rejection rates, statistical test results and structural status of elements linked to the social representation on aging, per cultural context group.*

Element	Italian			Brazilian		
	Ref. / %	$\chi^2(1)$	Status	Ref. rate	$\chi^2(1)$	Status
General decline	28 / 70	6.40*	Central	31 / 77.5	12.10***	Central
Family	31 / 77.5	12.10***	Central	25 / 62.5	2.50	Per.
Social exclusion	25 / 62.5	2.50	Per.	29 / 72.5	7.22**	Central
Death	15 / 37.5	---	Per.	23 / 57.5	.62	Per.
Wisdom	24 / 60	1.60	Per.	27 / 67.5	4.22*	Central
Health problems	23 / 57.5	.90	Per.	28 / 70	6.40*	Central
New activities	21 / 52.5	.10	Per.	12 / 30	---	Per.

\* $p < .05$  \*\*  $p < .01$  \*\*\*  $p < .001$

Compared to the Italians, who had a central core formed only by  $\langle \text{general decline} \rangle$  and  $\langle \text{family} \rangle$ , the Brazilians had a core constituted by four elements:  $\langle \text{general decline} \rangle$ ,  $\langle \text{social exclusion} \rangle$ ,  $\langle \text{health problems} \rangle$  and  $\langle \text{wisdom} \rangle$ . Results confirm the expected difference in representational structure predicted by hypothesis C2.

#### *Basic cognitive schemes*

Response distributions by Cultural context, Gender and Meta-scheme are presented in Table 4. The analysis on SCB total valences ( $N = 6720$ ) had a significant Activation

main effect [ $Y^2(1) = 553.941, p < .001$ ] as well as an interaction involving Cultural context and Activation [ $Y^2(1) = 37.367, p < .001$ ]. The Activation effect indicates that non-activations are more frequent than activation of relationships between [aging] and the responses. The main interest in the analysis is the first-order interaction: it indicates that Italian participants do activate more connectors (39.3%) than Brazilians (32.2%), which is compatible with hypothesis SCB-5: [aging] is a topic that is associated to a more complex network of relationships for the participants from the Italian context ( $\chi^2 = 6.10; p < .001$ ).

**Table 4**  
*Activation response distributions by Age group, Gender and Meta-scheme.*

	Cultural context											
	Italian						Brazilian					
	Description		Praxis		Attribution		Description		Praxis		Attribution	
Gender	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Male	345	195	472	248	216	204	384	156	527	193	240	180
Female	324	216	451	269	231	189	363	177	516	204	249	171

For the Description connectors ( $N = 2160$ ) there was only one relevant significant effect: the first order interaction involving Cultural context and Activation [ $Y^2(1) = 12.491, p < .001$ ]. Italian participants activate more Description connectors (38.1%) than do the Brazilians (30.8%) ( $\chi^2 = 3.53; p < .001$ ).

The same pattern observed for the general and Description valences is observed for Praxis ( $N = 2880$ ): the only pertinent effect is the first order interaction between Cultural context and activation [ $Y^2(1) = 23.130, p < .001$ ]. Results are compatible with hypothesis SCB-6: the Italians indicate more Praxis relationships involving aging – 35.9% – than the Brazilians – 27.6% ( $\chi^2 = 4.79; p < .001$ ).

The analysis for the Attribution meta-scheme ( $N = 1680$ ) also followed the same pattern, with a significant interaction of Cultural context and Activation [ $Y^2(1) = 4.258, p = .039$ ]. Again, Italian participants had a higher partial valence related to Attribution – 46.8% – than did the Brazilian – 41.8%. However, that difference was smaller than the ones relative to the other valences ( $\chi^2 = 2.06; p < .025$ ).

As in Study 1, a three way table with variables Meta-scheme, Cultural context and Activation was constructed to assess differences in the participation of different meta-schemes in the overall activation profiles of participants ( $N = 6720$ ). Hypothesis SCB-7 would be supported if a second order interaction was significant, and if results indicated a higher participation of Attribution connectors in the Brazilian profile, than in the Italian one. That was not the case; the second order interaction was non-significant [ $Y^2(2) = 2.512, p = .285$ ].

## Discussion

The overall picture that emerges from these results allows for a schematic understanding of the social representation on [aging] and how it is associated to age group, cultural context and gender influence. We will deal with results from the two studies separately and then comment on common aspects.

Concerning age group differences (Study 1), hypothesis predicting structural status differences and higher valences (total and praxis), for mature people and a higher participation of attribution connectors were confirmed. Results indicate

that young people represent [aging] as a process, marked by general decline and a shift to strengthening family life. The proximity of death, the acquisition of wisdom, the emergence of illness and health problems, as well as taking part in new activities, are all conditional possibilities related to it, but do not define it. In contrast, other than <general decline> and <family>, two elements play a central role for mature participants: <death> and <social exclusion>. A possible interpretation of this change is based on common experiences of older people, such as being cast aside by others, experience the deaths of parents and relatives, and realizing that their own death is getting closer, as the perspective of future gradually decreases.

These new components of the representation are probably linked to a higher identification of older people with the aging process, as it does not refer to a far-away reality, but can rather be felt in everyday life; personal identification was the only implication dimension in which mature participants scored higher than young ones. The remaining elements still maintain their conditional status, indicating possible, but not essential aspects that come around in the lives of people who are getting older. In terms of basic cognitive scheme activation, mature participants do activate more relationships for [aging] than young ones, and the latter tend to give a higher participation than the former to attribution relationships in their total valence. The pattern of more people who have higher practical experience regarding an object – as is the case with elderly people and [aging] – is supported by the literature (Guimelli, 1994), as well as results indicating that people without practical experience – the young – emphasize normative relationships (Abric & Tafani, 1995). Overall, concerning age group differences, the results point out to the understanding that the difference in stakes related to [aging] that young and elderly people face corresponds to representational differences in terms of structure.

The specificity of Study 2 is the identification of the importance of cultural contexts to characterize social representation structures. Hypotheses on structural differences and higher valences by Italian participants were confirmed. Compared to the Italian young participants, the Brazilian ones had a central core formed by four elements: <general decline>, <social exclusion>, <wisdom> and <health problems>. The differences are in the absence of a strong family component – an element central for Italians –, and in the view that aging is strongly connected

to gains in wisdom and experience, but also to the elderly people being cast aside from social life. Interestingly, in a study on intercultural differences between Brazil and Italy which shared the same sample of our preliminary study (Contarello, Bonetto, Romaioli & Wachelke, 2008), Brazilian participants who were asked about what they thought aging in Italy was like, mentioned that the Italians had a culture strongly marked by family life, and elderly people would be better integrated in that means. Accurate or not, the case with our results is that the Italian students do understand the aging process as closely linked to living in the family, whereas the Brazilian think it is just a possibility. In terms of other elements, the centrality of <social exclusion> and <health problems> in the Brazilian sample might be associated to the understanding that social conditions in Brazil are in general more precarious than in first-world countries – interpretation that is also supported by what the participants from the study of Contarello and collaborators (2010) express concerning Italy and Europe. As for <wisdom>, the sample of young Brazilians was the only one of the three groups in our study that confirmed it in the core. While it does seem to be a relatively important element for all of them, its centrality is not a common pattern, and therefore it justifies the conduction of structural investigations such as this one, aiming at confirming the status of representation elements rather than just identifying salient ones.

In terms of basic cognitive schemes activation, the Italians had higher total and partial valences. It does seem then that the supposed higher salience of the aging process in Italy – higher proportion of elderly people in the population – is a plausible way to explain those results. Yet, it is also pertinent to point out that in both groups the distribution of connectors across meta-schemes was similar; the same activation pattern holds true for both cultural contexts, and then it seems that there is an overall common activation profile for young people for the [aging] object. The higher salience of this object is associated with more associations in the representations, proportionally distributed across relationship types.

It is pertinent to remember, though, that cultures are dynamic; as Lehr (2002) pointed out, the aging of populations is likely to affect the relationship that people have with that topic and associated phenomena. The results from Study 2 only reflect a specific time and geographic frame, and as the proportion of elderly people in developing

and emerging countries increase – as is the case of Brazil – corresponding representations are also likely to change, as they reflect environmental conditions (Flament, 1994; Flament & Rouquette, 2003).

Another additional clarification is to be done concerning the nature of the research in Study 2. It has a clear multicultural perspective, based on the assumption that cultures are relatively isolated “blocks” and their comparison can be useful to understand the nature of cultural variables, in sociopsychological processes. We are considering that Brazilian and Italian people, in general, have little contact with people from the other country at an intergroup level, and that those cultures maintain a reasonable social distance. In the case of contexts in which people from different cultures get into intense social exchanges, an intercultural approach (Mantovani, 2004) might be preferred. Also, it is possible to undertake research efforts considering both age groups and the Brazilian and Italian contexts, within an intercultural perspective (cf. Contarello et al., 2008).

As for an aspect that was common to both studies here reported, it is important to stress that gender played no role in defining the structure of the social representations on [aging]. This result is compatible with the understanding that gender differences usually reflect what Flament and Rouquette (2003) call field effects: the modulation of ideological oppositions (such as male – female) in representational structures is restricted to peripheral differences.

Finally, two methodological contributions from the studies are to be emphasized. The first one is the adoption of log-linear analysis in structural social representations research. The literature has usually employed bivariate chi-square tests to measure the associations of nominal-level variables, both to evaluate structural status and basic cognitive scheme activation. Log-linear analysis and modeling have the advantage of measuring the statistical association of three or more variables from contingency tables, which makes it possible to assess the interactions in factorial survey, experimental and quasi-experimental designs with more precision. To our knowledge, this is the first structural research on social thinking that makes use of this statistical technique.

A second point that is worth mentioning is the analysis of the participation of partial valences within the total valence

activation profile. As we observed in our Study 1 results, it disclosed a trend for attribution activation among young participants that would go unnoticed, if we had restricted the analysis to the comparison of partial valences across age groups. The participation of meta-scheme connectors within the whole activation profile is a potential carrier of pertinent information and might be relevant also for other research projects.

In conclusion, results are mostly internally coherent. The study provided a structural characterization of the representation on [aging], that contributed to the understanding of the effects of age group belonging and cultural contexts, as salient social segmentation that is corresponded by considerable differences in representational structure. In addition, gender plays a peripheral modulating role. The study sets the foundations for further basic and applied research in the investigated contexts, even if it is desirable to replicate results before proceeding, so as to authorize generalization of results.

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